

I Claim:

1 1. A procedure for correcting vision in an eye of a patient caused by defects in the cornea,
2 said procedure being performed with the aid of a computer system, said method comprising the steps
3 of:

4 (a) inputting categorical data for an eye with visual correction methods and outcomes;

5 (b) inputting continuous data for said eye with visual correction methods and outcomes;

6 (c) examining the patient's eye and building an optical model of said patient's eye;

7 (d) comparing said model with said categorical and said continuous data with visual
8 correction methods and outcomes;

9 (e) generating an initial procedure recommendation for said patient's eye with a predicted
10 outcome;

11 (f) comparing said predicted outcome with said categorical and continuous outcomes to
12 determine acceptability; and

13 (g) performing said procedure when the predicted outcome is acceptable.

1 2. The procedure of claim 1 including the steps of iterating modifications of said procedure
2 and comparing said predicted outcomes until a predicted outcome is acceptable.

1 3. The procedure of claim 1 including the step of inputting data from patient's eye including
2 visual correction method and outcome, and evaluating the outcome on patient's eye.

1 4. The procedure of claim 1 wherein said computer system includes a display means for
2 viewing said predicted outcome.

1 5. The procedure of claim 1 wherein said categorical and said continuous data pass through
2 a ray transfer element means for converting said data to wavefront aberrations.

1 6. The procedure of claim 5 wherein said ray transfer element means adapts said optical
2 model to include wavefront aberrations of past surgical procedures, thereby improving projections
3 for subsequent procedures.

1 7. A method of optimizing the predictability of a vision correction method comprising the
2 steps of:

- 3 (a) inputting a set of categorical data points for an eye with visual correction methods;
- 4 (b) inputting a set of continuous data points for an eye with visual correction methods;
- 5 (c) inputting outcome data points for visual correction methods;
- 6 (d) examining a patient eye and building an optical model of said eye;
- 7 (e) selecting a visual correction method for said eye based on said outcome data and
8 generating an initial procedure recommendation;
- 9 (f) predicting the outcome of said initial procedure recommendation;
- 10 (g) evaluating said predicted outcome for acceptability; and
- 11 (h) iterating a modification of said initial procedure recommendation and re-evaluating the
12 predicted outcome until predicted outcome is acceptable.

13 8. A method of optimizing the predictability of a vision correction method of claim 7 including
14 the steps of
15 (i) performing the procedure;
16 (j) evaluating the outcome of said procedure; and
17 (k) updating said data points.